```
For each i              /* rows */
   for each j              /* columns */
     for each u              /* u = 0,1,..., k */
       MM_u(i,j) = M_u(i,j) + \sum_{x,y} w_u(x,y)e_u(i-x,j-y)
     endfor (u)
     ExOut(i,j) = \underset{c \in C}{\text{argmin}} \; (\sum_u v_u |MM_u(k,l) - c_u|^p)^{1/p}
             /* c_u is the (u+1)-th coordinate of c */
     (e_0(i,j), ... e_k(i,j)) = (MM_0(i,j), MM_1(i,j), ...
                                 MM_k(i,j)) - ExOut(i,j)
   endfor (j)
endfor (i)
Set embedded source image M_0' as the first
coordinates of ExOut.
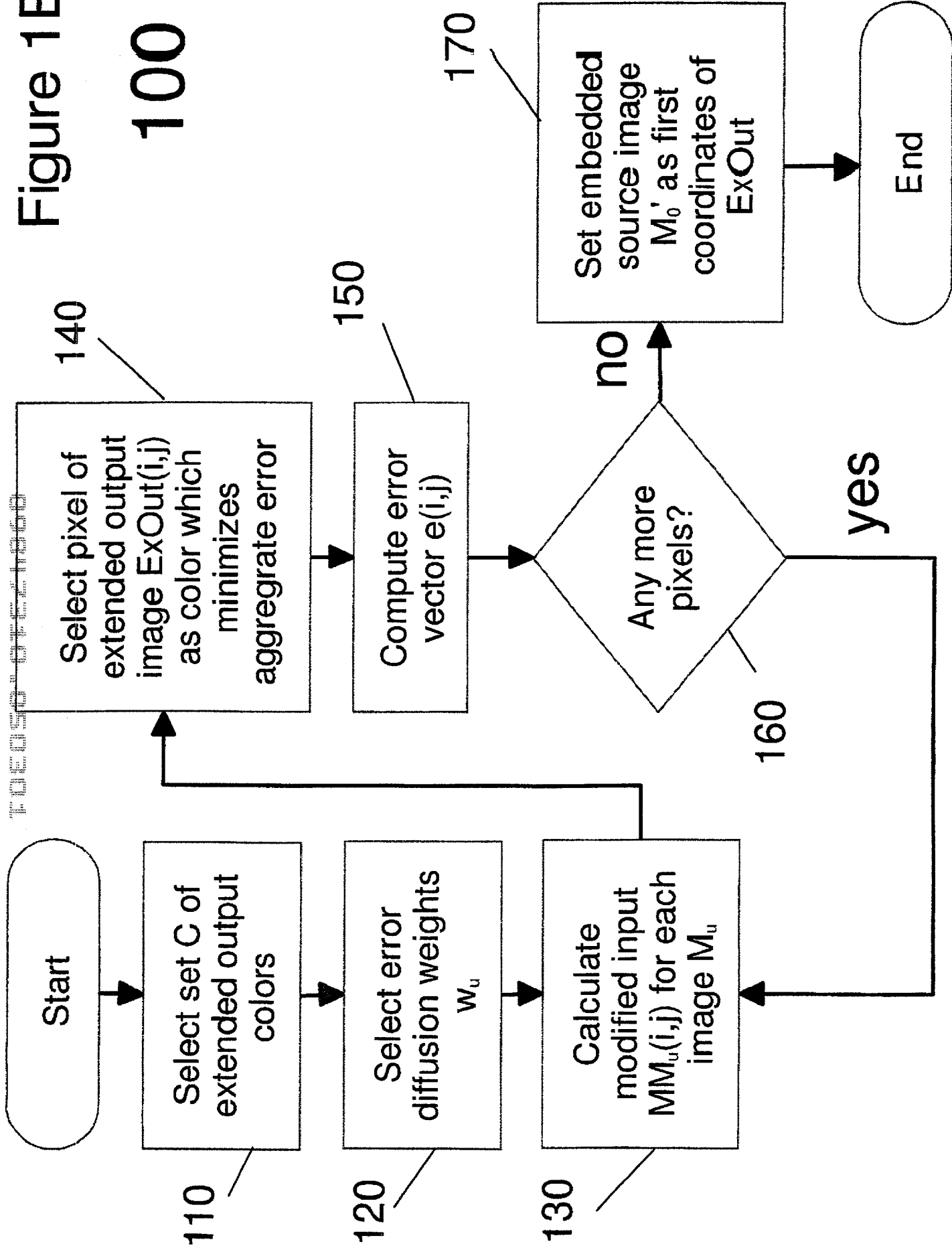```

Figure 1A

# Figure 1B

## 100

**Start** →

**110** Select set C of extended output colors →

**120** Select error diffusion weights $w_u$ →

**130** Calculate modified input $MM_u(i,j)$ for each image $M_u$ →

**140** Select pixel of extended output image ExOut(i,j) as color which minimizes aggregrate error →

**150** Compute error vector e(i,j) →

**160** Any more pixels?

**yes** → (back to 130)

**no** →

**170** Set embedded source image $M_0'$ as first coordinates of ExOut →
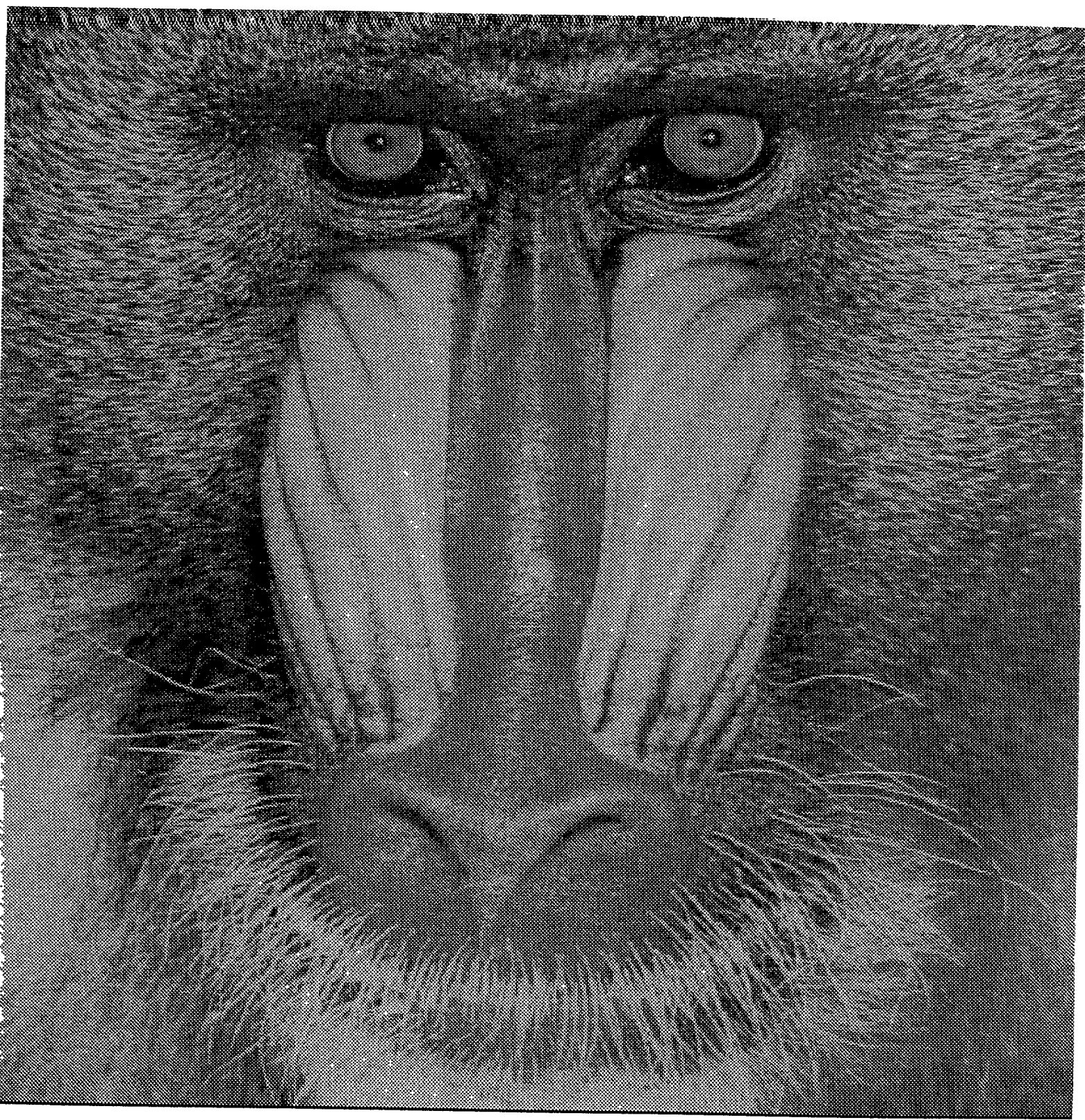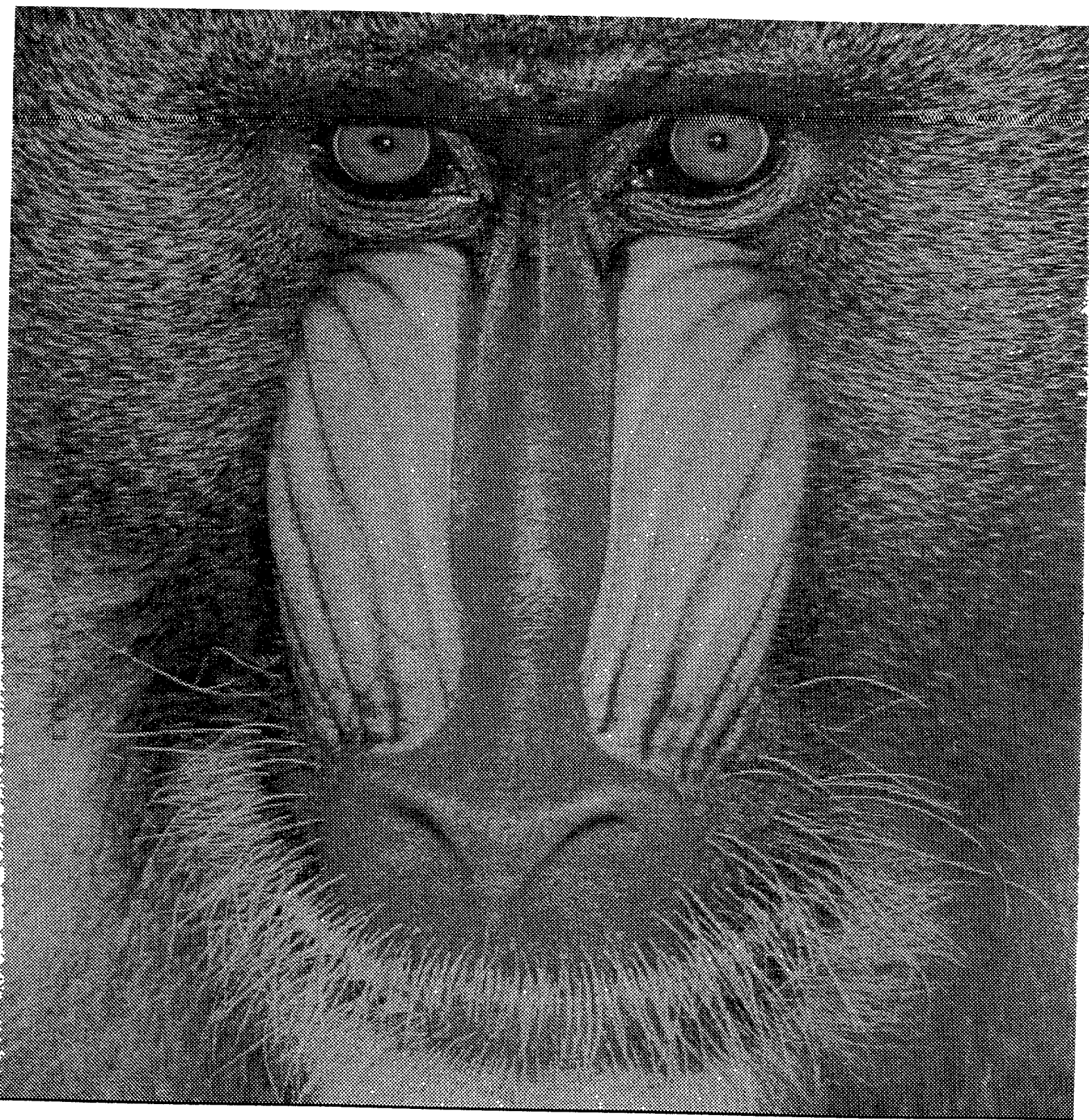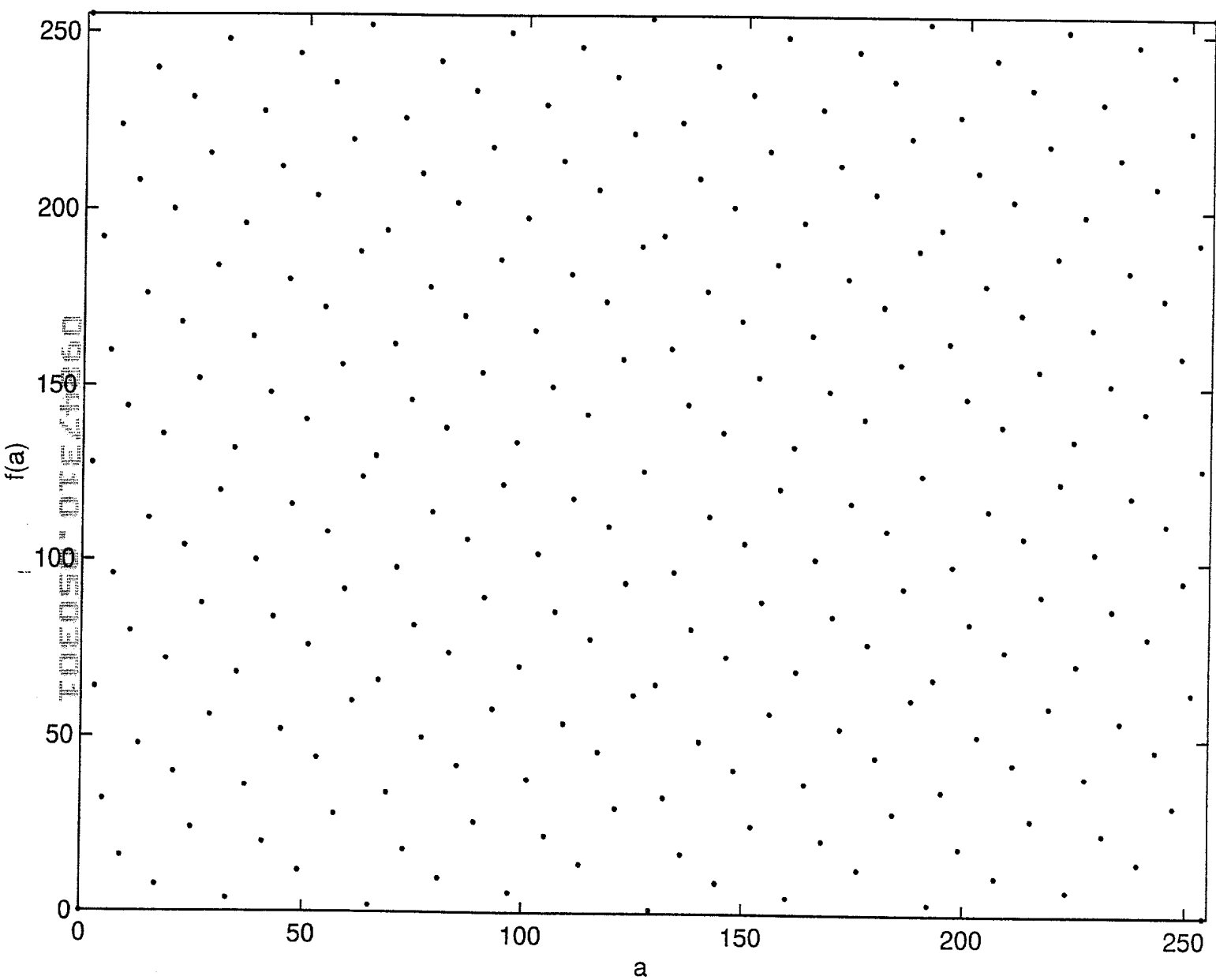
**End**

FIGURE 2A

FIGURE 2B

FIGURE 2C

FIGURE 2D

FIGURE 3A
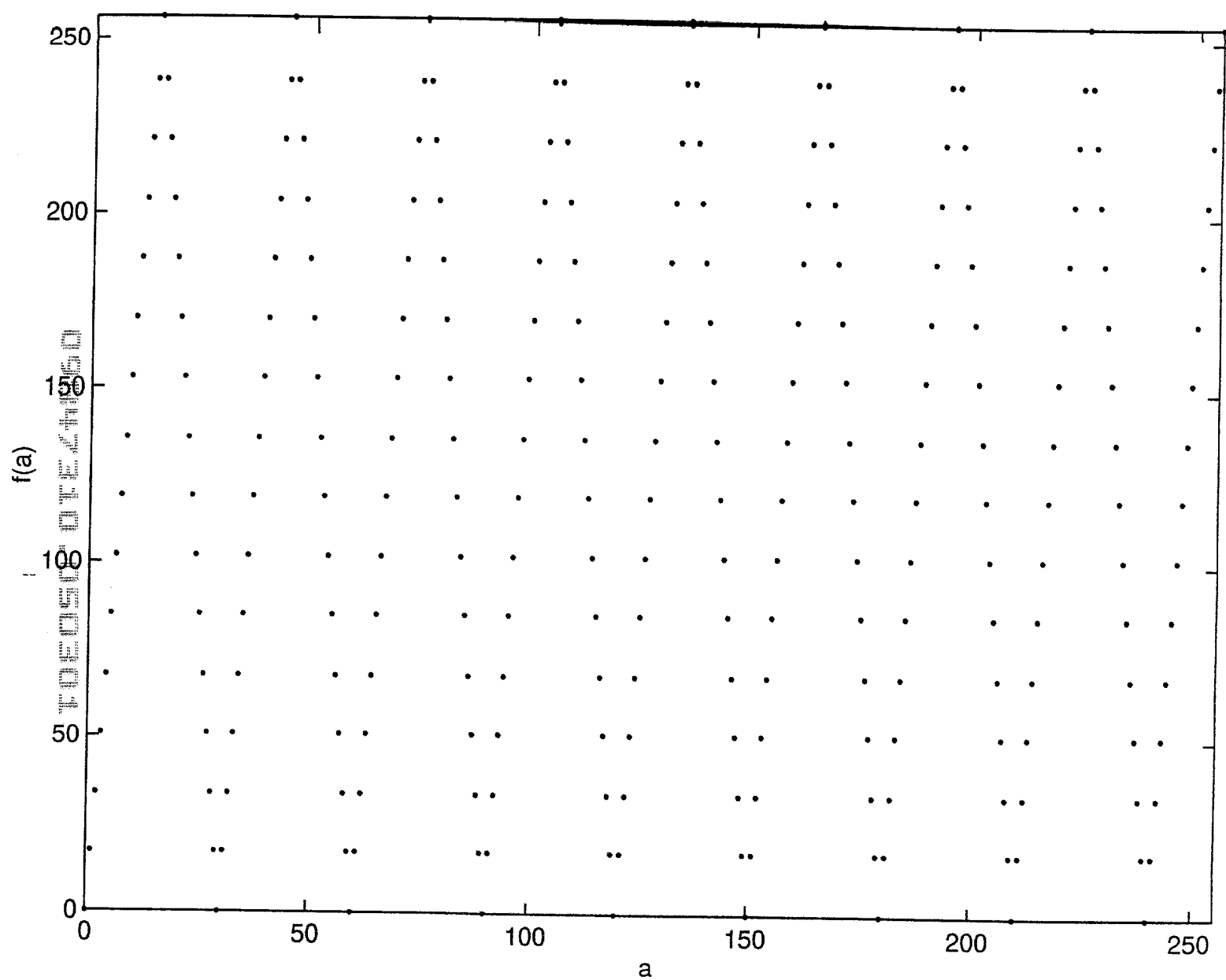
FIGURE 3B

FIGURE 4A

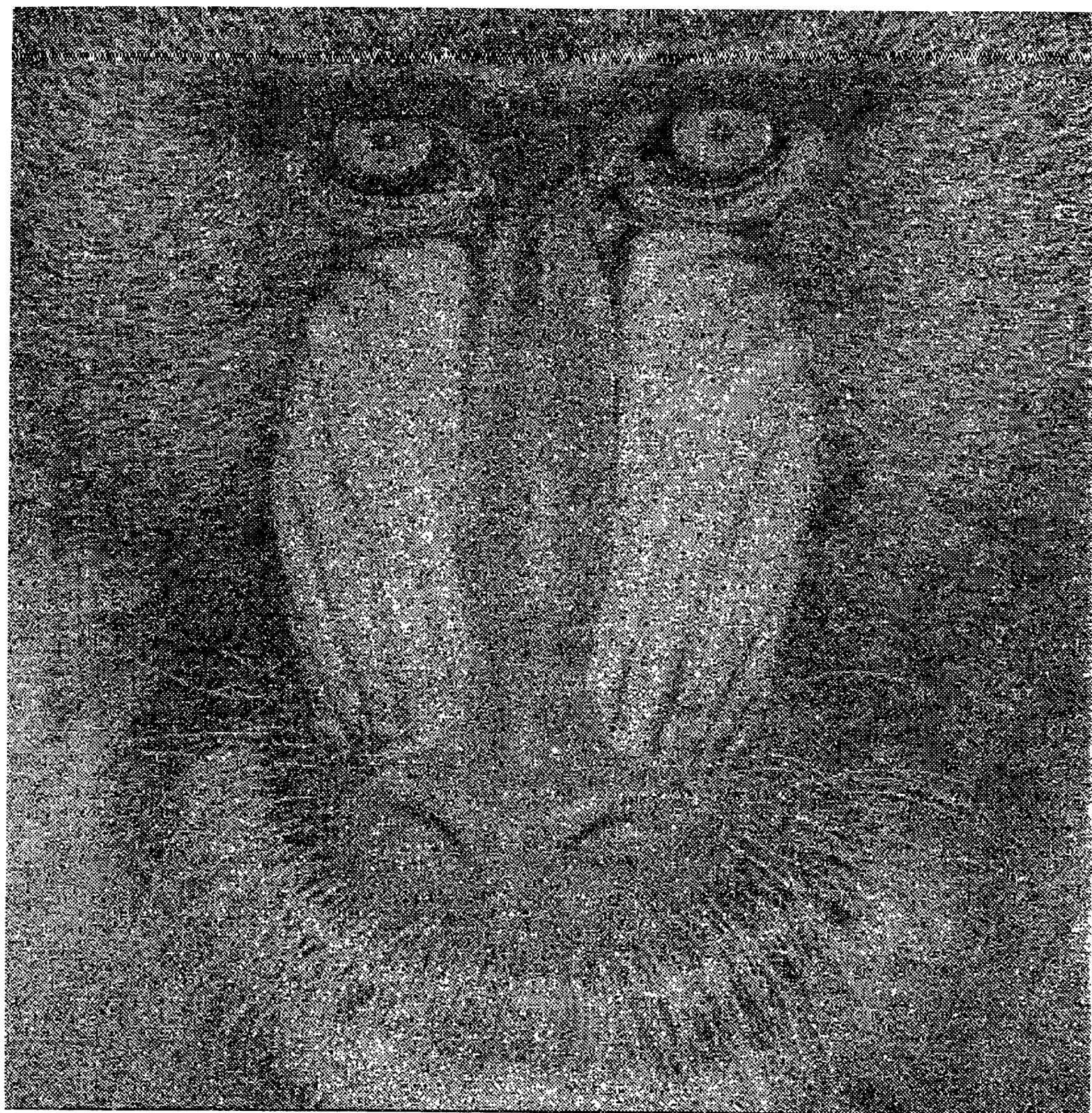FIGURE 4B

```
For each iteration   /* iteration */
   for each i   /* rows */
      for each j   /* column */
         for each member d of C   /* search through
                                     all possible members
                                     of C */
            set ExOut(i,j) = d
            compute
                v(d)=|L(ExOut₀ - M₀)|²+|L(PExOut₁ - M₀)|²
         endfor (d)
         set ExOut(i,j) = argmin v(d)
                               d
      endfor (j)
   endfor (i)
endfor (iteration) or until ExOut has not changed
between two consecutive iterations.
Set embedded source image M₀' as the first
coordinates of ExOut.
```
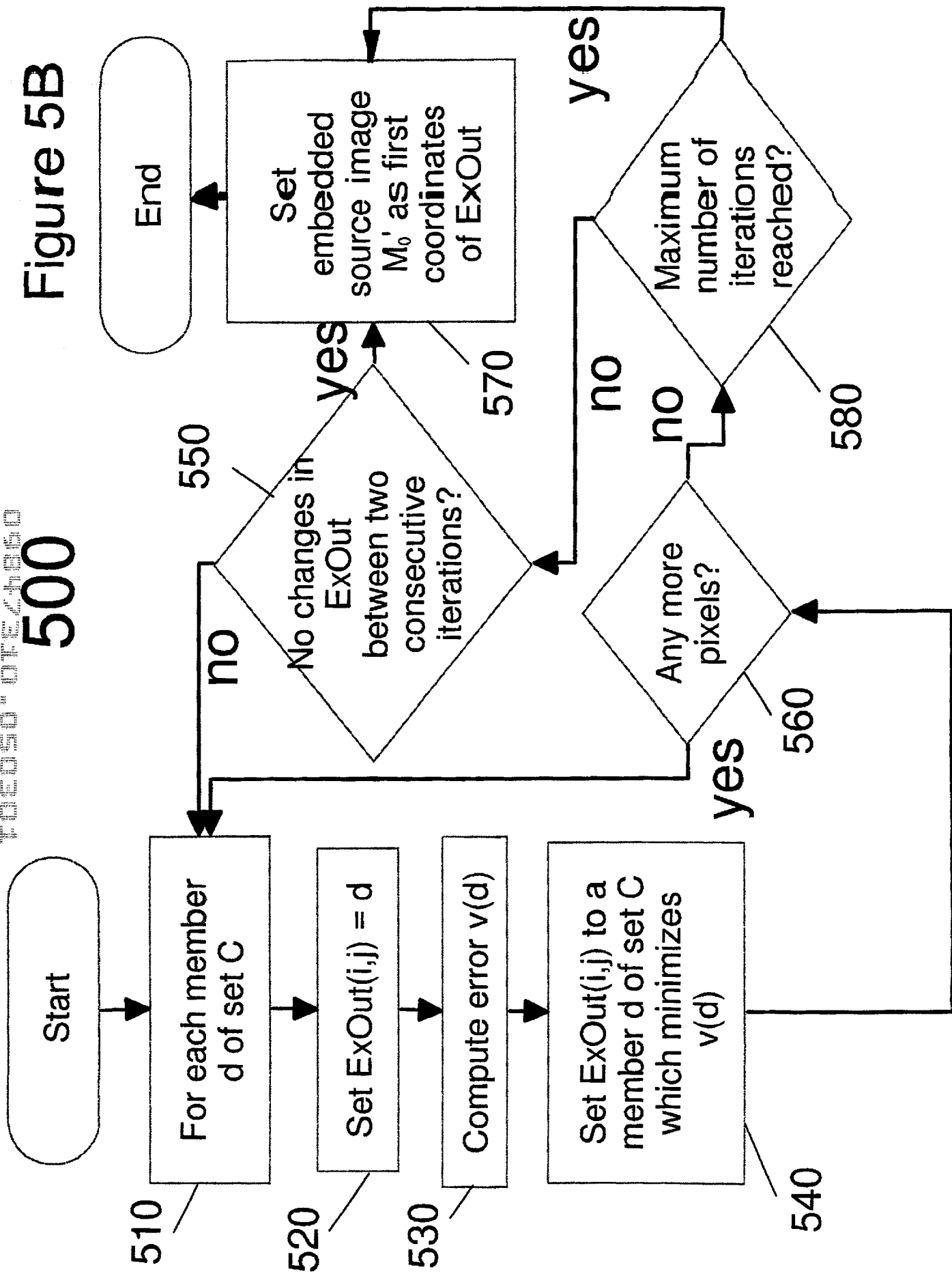
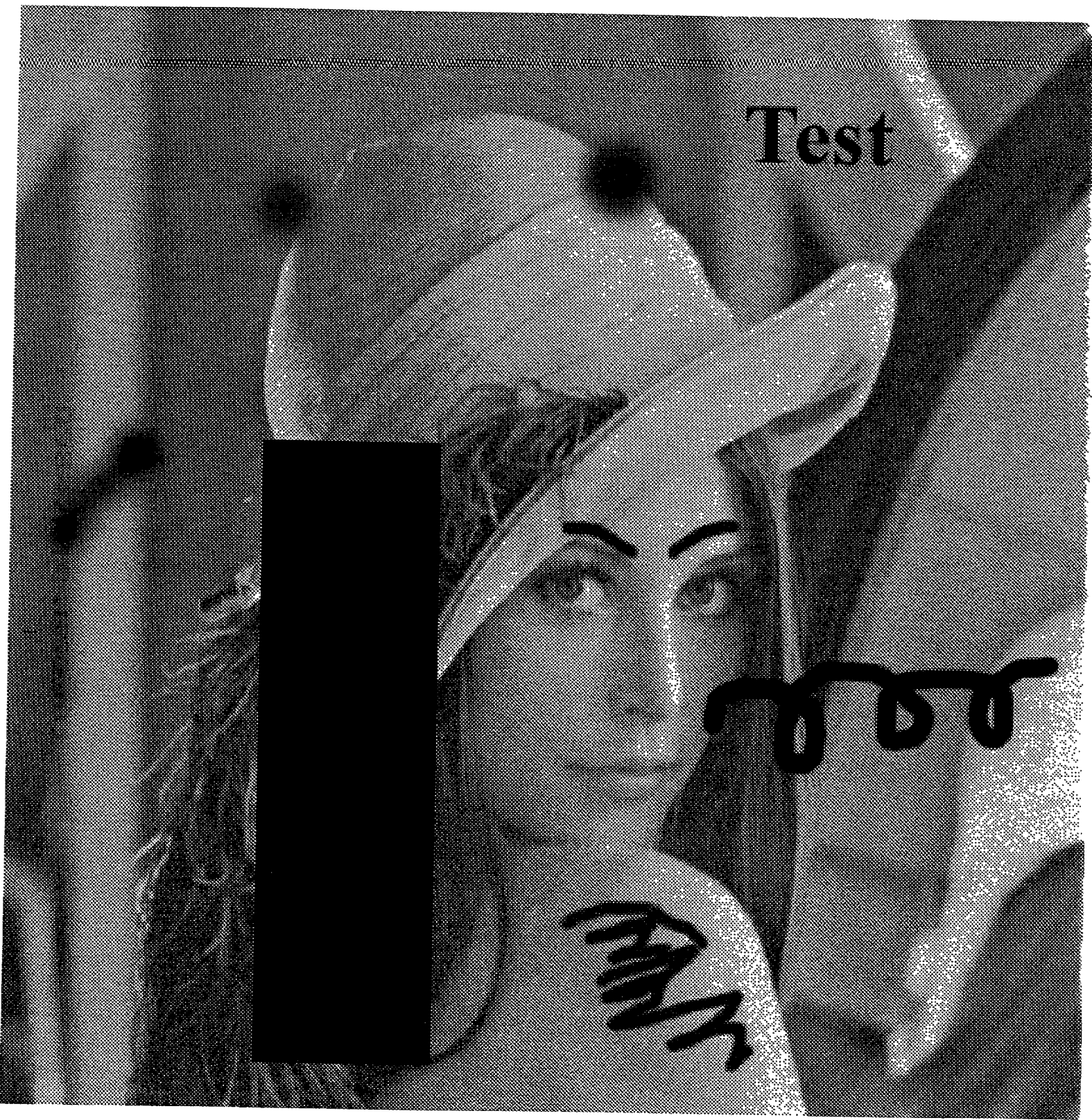$$v(d)=|L(ExOut_0 - M_0)|^2+|L(PExOut_1 - M_0)|^2$$

$$set\ ExOut(i,j) = \underset{d}{argmin}\ v(d)$$

Set embedded source image $M_0'$ as the first coordinates of ExOut.

Figure 5A

## Figure 5B

## 500

Start

510 — For each member d of set C

520 — Set ExOut(i,j) = d

530 — Compute error v(d)

540 — Set ExOut(i,j) to a member d of set C which minimizes v(d)

560 — Any more pixels?

yes

no

580 — Maximum number of iterations reached?

yes

no

550 — No changes in ExOut between two consecutive iterations?

no

yes

570 — Set embedded source image M₀' as first coordinates of ExOut

End

Test

FIGURE 6A

FIGURE 6B

Test

FIGURE 6D

FIGURE 6E

FIG. 7

NETWORK

CPU 11 — CPU 11 — RAM 14 — ROM 16 — I/O ADAPTER 18 — COMMUNICATIONS ADAPTER 41

12

40

21

USE INTERFACE ADAPTER 22

DISPLAY ADAPTER 36

38

24

32

26

28

FIG. 8

800